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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,883	01/05/2001	George H. Seward	20784/5	5402

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EXAMINER
TREMBLAY, MARK STEPHEN

ART UNIT	PAPER NUMBER
2827	

DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/754,883	SEWARD, GEORGE H.	
	Examiner	Art Unit	
	Mark Tremblay	2876	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Objections

Claim 17 objected to because of the following informalities: The claim does not end with a period. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent #6,374,012 to Bergmann et al. ("Bergmann" hereinafter) in view of U.S. Patent #5,701,373 to Oleskevich ("Oleskevich" hereinafter), or alternatively in view of U.S. Patent #6,125,222 to Anthon. Bergmann teaches a method for aligning the optical elements which couples and focuses a laser beam into an optical fiber, the method comprising the steps of:

determining a first set of angular and spatial tolerances applicable to the focused laser beam entering the fiber (see background information)

determining a second set of angular and spatial tolerances for collimating the laser beam such that a collimated beam is aligned to the axis of the fiber within the second set of angular and spatial tolerances (see e.g. figures 3a-3c and 10),

determining a third set of angular and spatial tolerances for focusing the laser beam onto the axis of the optical fiber within the third spatial tolerance by placing a strong lens (8, 88, 98, etc). within the collimated beam within the third spatial tolerance (see figures 3a-3c and 10), and

steering the laser beam onto the axis of the optical fiber within first spatial tolerance by

placing a weak lens (7, 57, ... 127) within the collimated beam within the third spatial tolerance.

Bergmann teaches the basics of the Applicant's invention, but teaches the invention more broadly for "filters, multiplexers, modulators, transmitters, receivers, and power splitters, to name a few" rather than the Applicant's teaching of coupling a laser diode into the fiber. Bergmann clearly contemplates the placement of a weak lens in a collimated beam, prior to focusing the beam with a strong lens onto the fiber, in order that the weak lens be used for fine adjustments of the beam onto the fiber, the same as Applicant. What Bergmann does not teach is the production of a collimated beam using a laser diode and a strong lens. This type of arrangement is notoriously old and well known. A strong lens is placed normal to the face of the laser diode, at a distance equal to the focal length of the lens, in order to create a collimated beam. Everyone with ordinary skill in the art knows this. Examiner has alternatively relied upon two references which illustrate this general use of laser diodes and lenses, in order to stress the point that this is an old and well known technique. This is why Bergmann doesn't need to teach the details of where the collimated beams in figures 1-4 and 10 come from. While a laser diode and lens as described above is not the only place a collimated beam can come from, it is certainly the default suspect for fiber optic systems. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the laser/strong lens taught in either Anthon or Oleskevich to produce the collimated beam referenced in Bergmann because Bergmann doesn't teach how to generate a collimated beam, while teaching that the invention is applicable to collimated beams, and Anthon or alternatively Oleskevich teach how to generate the collimated beams that are used in the type of fiber optics systems taught by Bergmann.

Re claims 2-5, 10-13 Bergmann teaches that the focal length of the strong lens should be anywhere from 10X to 100X the length of the weak lens. Bergmann also teaches that this allows the fine adjustment of the focussed laser spot within "hundredths of a micron" by moving the weak lens within "a few microns". This clearly contemplates and suggests 10 microns as a few microns, and .1 microns as 10 hundredths of a micron, or a few hundredths of a micron.

Re claims 6, and 14 this is clearly the objective of Bergmann.

Re claims 7 and 15 Bergmann teaches an example where the strong lens has a focal length of 2 mm, and the weak has a focal length of 200 mm. Anthon teaches that the strong

lenses can be in a range preferably between 1.45 and 4.5 mm. Since these are exemplary, the difference between 4.5 and 5 mm would be an obvious variation to the person having ordinary skill in the art, because 4.5 is 5 in round numbers. More important is the relationship between the relative strengths of the lenses. With a lens in the range of 5 mm, the weak lens would be from 50 mm (10x) to 500 mm (100x) according to Bergmann's scheme. This means that the corresponding axial tolerance for the strong lens would be in the range of 10-100 um, if the axial tolerance for the weak lens was in the range of 1um, as specifically stated by Bergmann. Thus, the axial tolerance follows directly from analyzing the teachings.

Re claims 8 and 16 Bergmann is clearly using this method in that the weak lens is provided specifically to make the system "finely tuned or trimmed" after an initial adjustment. (See col. 1, lines 40-43, for example, and the rest of the disclosure).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent #6,222,679 to Nevis, U. S. Patent #5,195,155 to Shimaoka et al. and U. S. Patent #4,886,337 to Raagaard et al. are cited for showing devices for aligning beams into optical fibers which use a relatively weak and optically leveraged element within a collimated beam to effect adjustment.

Voice

Inquiries for the Examiner should be directed to Mark Tremblay at (703) 305-5176. The Examiner's regular office hours are 10:30 am to 7:00 pm EST Monday to Friday. Voice mail is available. If Applicant has trouble contacting the Examiner, the Supervisory Patent Examiner, Michael Lee, can be reached on (703) 305-3503. Technical questions and comments concerning PTO procedures may be directed to the Patent Assistance Center hotline at 1-800-786-9199 or (703) 308-4357.

MARK TREMBLAY
PRIMARY EXAMINER

March 16, 2003